California
Commission on Teacher Credentialing

Meeting of
December 4-5, 2002

AGENDA ITEM NUMBER: PUB –1 - INFOLDER

COMMITTEE: Public Hearing

TITLE: Proposal to Consider Title 5 Regulations for Single Subject Teaching Credentials in Science (Specialized) and in Foundational-Level Mathematics

__X__ Action

Strategic Plan Goal(s):

Goal 1: Promote educational excellence through the preparation and certification of professional educators

- Sustain high quality standards for the preparation of professional educators
- Assess and monitor the efficacy of the Accreditation System, Examination System and State and Federal Funded Programs

Presented By: Philip A. Fitch, Betsy Kean, Nicole A. Amador

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In-Folder
Public Hearing

PUBLIC HEARING

PROPOSAL TO CONSIDER TITLE 5 REGULATIONS FOR SINGLE SUBJECT TEACHING CREDENTIALS IN SCIENCE (SPECIALIZED) AND IN FOUNDATIONAL-LEVEL MATHEMATICS

TALLY UPDATE
As of December 3, 2002

Note: *All public comments to the proposal are included here. The italicized comments and Commission staff responses are new since the agenda publication.*

Tally of Responses

In Support	In Opposition
0 organizational opinions	0 organizational opinions
12 *personal opinions*	5 *personal opinion*

Responses Representing Organizational Opinions in Support
- None.

Responses Representing Personal Opinions in Support
- Carol Fry Bohlin, Professor, Mathematics Education, California State University, Fresno
- Roy M. Bohlin, Professor, Curriculum and Instruction, California State University, Fresno
- *Nancy Bon, John Adams Middle School, Santa Monica*

***Comment**:*
I strongly support the Foundational Level Mathematics Credential. I am just the person for which this credential would be designed. I have a background in market research, computer programming and systems analysis. I currently teach 6th grade math on an emergency credential while obtaining my teaching credential, and have also taught algebra as a year-long substitute teacher. The current CSET subject matter competency Mathematics test is a hurdle I have not yet surpassed, and I do not have high hopes of being able to pass the third section as it stands. While I desire very much to teach, I do not desire to take more classes just to pass the test, in addition to my credential courses. This could mean giving up my job. As such, I would welcome a Foundational Level test and credential, since I only wish to teach up to algebra. Please move quickly on this matter, so I can be able to take advantage of such a credential and stay in the classroom!

- *Casey Morgan Dugger, Prospective Teacher*

  Comment:
  Hi this is Casey Dugger. I am responding to an email asking "What can we do for you?" which, in turn, is in response to my comments on the new additions to the education code regarding single subject teaching in the sciences. I made a comment in the first place since the Dept of Education Website asked for comments by Dec. 4. I am not entirely certain about which context this question is intended, but I am guessing it has to do with ideas for future legislation? If this is the case, then I would like it if getting a teaching credential were quick and easy if you already had a masters or doctorate, and of course the obvious for any job, competitive pay. Other than that, the only thing left to consider is personal, ie: do I want to teach?

  Staff Note: *The text of Mr. Dugger's initial e-mail response did not reach the Commission. This prompted staff's "What can we do for you?" reply.*

- Kelly D. B. Gutierrez, Teacher Credentialing Advisor, University of Southern California

- *Milla Hill, Math Teacher and Chair of Math Department, Yavneh Hebrew Academy*

- Alicia Legarda, M.A., Teacher, Folsom Cordova Unified School District

- *Dr. Robert Nakamura, Associate Professor of Biology, Coordinator of the Natural Science Program, Department of Biological Sciences, Cal State Los Angeles*

  Comment:
  Dear California Commission on Teacher Credentialing,

  I write to support the introduction of specialized science credentials. As a science credential adviser at Cal State Los Angeles, I meet many biology majors who have the subject matter competence to teach biology in high school but who do not have the comprehensive background expected in the existing single subject science credential. They usually lack courses in astronomy and geological sciences.

  However, I do not understand why the proposal for the Science (Specialized) credentials requires either completing postgraduate work or passing an exam. The proposal does not recognize undergraduate coursework in science. Yet, in the existing Science credential a student can demonstrate subject matter competence through undergraduate courses. The undergraduate courses that signify competence to teach high school biology in the science credential with a concentration in biological sciences would not count in the biological sciences (specialized) credential.

  The scope of graduate programs in science can be quite specialized. A student with a M.S. in biology may have great knowledge of neuroscience because of coursework and thesis research, but is this type of specialization in one area of biology the subject matter competence needed for secondary teaching?

Allowing consideration of appropriate undergraduate courses would greatly increase the number of persons eligible for specialized science credentials. The present proposal is a very narrow open door to the science (specialized) credential.

Thank you for your consideration.

Commission Staff Response:
Commission staff wishes to thank Dr. Nakamura for his thoughtful response to the Science (Specialized) proposal. The Science Advisory Panel and Commission did consider what Dr. Nakamura is proposing. However, the Science Advisory Panel felt that they did not want to recommend any action that could possibly result in fewer fully credentialed teachers in the current single subject science areas. It is their intent to encourage more undergraduate science majors to complete an approved science program that includes science courses in the general science "breadth" areas as well as the specific science "depth" areas. Encouraging individuals to pursue an undergraduate degree in biology to obtain the specialized credential would reduce the number of candidates seeking authorizations that include general science in grades 6-9 and integrated science in grades 6-12. The majority of the science classes taught in grades 6-12 include general science or integrated science content, and school districts continue to need the flexibility to assign science teachers in both the depth and breath science content. The specialized credential in science is intended to reach individuals who have advanced beyond baccalaureate work in science and credential them to teach in one of the four specialized areas of science.

Additionally, individuals who have already completed a baccalaureate degree in a specific science and do not wish to teach the general or integrated science content or complete an advanced degree in science may use the proposed examination option to satisfy the specialized science subject matter requirement.

- *Lourdes O'Brien, John Adams Middle School, Santa Monica, CA*

Comment:
I strongly support the approval of the Foundational-Level Mathematics Credential. I believe that it would be a welcomed addition and that many credentialed teachers would appreciate the opportunity to attain a Foundational-Level Mathematics Credential.

- *Jack Price, Professor Emeritus and Math Panel Member, California State Polytechnic University, Pomona*

- Phoebe Roeder, Natural Science Program, Department of Physics, San Diego State University

Comment:
I strongly support the proposed addition of Biological Sciences (Specialized), Chemistry (Specialized), Physics (Specialized), and Geosciences (Specialized) to the list of approved subject matter areas. As the developer and chief adviser for the single subject science programs at San Diego State University, I have had many frustrated candidates who did not have all the necessary general science courses required to satisfy the current science subject matter requirements. I think that this change should significantly increase the number of qualified science teachers in California.

• Dr. Igor Subbotin, Lead Math Faculty, National University

Responses Representing Organizational Opinions in Opposition
• None.

Responses Representing Personal Opinions in Opposition
• Bruce Arnold. Co-Director Algebraic Thinking Institute (ATI), Math Professional Development for UCSD Partnership Schools (CREATE), Department of Mathematics, University of California, San Diego

Comment:
No, I do not agree with the proposed Title 5 Regulations for the following reasons:

I have two concerns. One, the stated purpose of the proposed regulation is to increase the potential pool of mathematics teachers by encouraging professionals (e.g., engineers) to investigate a second career in teaching. To accomplish this purpose, it appears the proposed regulation is making it easier (in some sense) for these individuals to earn a credential. This leads to my second concern. The content knowledge required for the new area of Foundational-Level Mathematics only includes the mathematics taught in the K-12 mathematics courses (i.e., general mathematics, algebra, geometry, probability and statistics, and consumer math) that the holder of the new credential would be allowed to teach. Specifically, such content knowledge would not require "in-depth knowledge of advanced mathematics". Yes, I believe it is important for a mathematics teacher to understand the subject matter of his course well, analogous to Ma's PUFM. However, I believe that a teacher should also understand the subject matter of mathematics courses immediately preceding his or her course and those immediately following. To understand your subject matter well implies that you understand the foundations of it and how more advanced courses use your subject matter. I would recommend that a teacher of Geometry should understand Trigonometry and Calculus, because geometry lays essential foundations for both courses. If a Geometry teacher did not understand Trigonometry and Calculus, he or she might not be preparing his or her students for these courses.

My bottom line is that every secondary school mathematics teacher should have a strong foundation in mathematics through calculus. I am not suggesting that every teacher needs a deep understanding of courses that follow a basic college course in calculus, e.g, differential equations, linear algebra, number theory, etc.

This represents my personal opinion.

Commission Staff Response:
Professor Arnold is specifically concerned with the level of rigor of the subject matter requirements for the Single Subject Teaching Credential in Foundational-Level Mathematics, a concern addressed extensively by both the panel and the Commission. The subject matter requirements in foundation-level mathematics, an authorization targeting 90% of all middle and high school mathematics classes, represent a subset of the subject matter requirements for the Single Subject Teaching Credential in Mathematics. This subset is at the same level of depth and rigor as the full set of subject matter requirements.

Furthermore, these requirements, while aligned to the K-12 Student Academic Content Standards, hold candidates responsible for an understanding and proficiency beyond the student standards. Candidates are required to demonstrate an understanding of the content domains from an advanced standpoint.

- *Dr. Chuck Downing, Director of Teacher Education, Point Loma Nazarene University*

Comment:

Thanks for the information. There is only one SERIOUS THING WRONG WITH THE CODED CORRESPONDENCE. THE SCIENCE PANEL WAS GENERALLY OPPOSED TO THIS WHOLE PLAN FORM [sic] THE BEGINNING. TO BE HONEST WITH YOU, I RESENT MY NAME BE ASSOCIATED WITH THIS IDEA. I KNOW YOU'RE JUST THE MESSENGER IN THIS CASE, BUT I'M PRETTY SURE I SPEAK FOR MANY OF THE PANEL MEMBERS ON THIS. I doubt that I will respond favorably to any future requests for help by the Commission. I understand politics enough to know that this plan was never really open to debate, but to blatantly falsify statements about the panel's work is demeaning and dishonest.

Commission Staff Response:

Please see the response to Ms. Vasta's comment.

- *Judith Kysh, Assistant Professor, San Francisco State University*

Comment:

A. *The current test is at the Foundational Level - a separate presumably lower level test is not needed.*
B. *What level of algebra and geometry? Does this include material currently in Algebra II/Trig courses or Analytic Geometry? This is not clear from what I am reading.*
C. *Unless you include some clear requirement for teachers to upgrade this credential over a period of 5-7 years this will result in an underclass of teachers permanently assigned to teach lower level students - e.g. those who fail algebra in the eight grade. This will lead to higher turnover rates or worse. Those who stay, many of them anyway, will grow old and bitter trying to force an inappropriate curricula on reluctant students - all day, every day. Something is needed, but it needs to be more creative than this.*

Commission Staff Response:

A. *The California Subject Examinations for Teachers (CSET) in Mathematics, to be implemented in January 2003, is based on a set of subject matter requirements that is aligned to the K-12 Student Academic Content Standards, but outlines content knowledge from an advanced standpoint, requiring mathematical understanding and proficiency beyond those standards.*
B. *Under the proposal, the Foundational-Level Mathematics does not authorize trigonometry so a holder could not teach an Algebra II/Trig course, and analytic geometry is traditionally taught as part of a pre-calculus course, which also would not be authorized under this area.*
C. *If individuals who hold a Single Subject Teaching Credential in Foundational-Level Mathematics wish to change their authorization, they will be able to add either the full Mathematics authorization or one in another subject. This was not included in the*

proposed regulatory text because it is already noted in Title 5, Section 80499. Requirements for Adding an Authorization to an Existing Credential.

- *Jodye Selco, Director, The Center for Education and Equity in Mathematics, Science and Technology, California State Polytechnic University*

***Comment**:*
I have to admit that I agree with Chuck on this one. The paragraph I have a problem with is the one that begins:

"As part of the task of reviewing the new K-12 Student Academic Content Standards, the Commission charged its Subject Matter Advisory Panels in Science and Mathematics with exploring possible changes in the existing single subject credential structures that might encourage more individuals to obtain science and mathematics certification. The panel members, who are practicing science and mathematics teachers, faculty members and other California educators, proposed the addition of the Science (Specialized)"

I know for a fact that we did not propose the addition of the science (specialized) credential - we were explicitly opposed to it as a group. We did grudgingly agree to attempt to put restrictions upon what this specialized credential could be used for - some of which has been changed from what the committee recommended. The reason we agreed to make the recommendation we did was because we were told that the law had been passed and we had no option but to attempt to influence how it was put into practice.

I too resent my name being associated with the statement above! As a panel member I know that we did not propose the addition of specialized science credentials.

The other problem I have with the above paragraph portion is that I thought that we were charged with bringing teacher credentialing standards in-line with student standards. I think that we could have made some reasonable recommendations for changes to the K-12 Student Academic Content Standards had that been our charge. I also do not remember being charged with "exploring possible changes in the existing single subject credential structures that might encourage more...certification." Did I sleep through all of this part of our charge?

***Commission Staff Response**:*
Please see the response to Ms. Vasta's comment.

- *Ellen Vasta, Elk Grove Unified School District*

***Comment**:*
I agree with the responses sent by Chuck and Jodye....we were told that the "powers that be" wanted this specialized credential, but it was not something the committee proposed or backed.

***Commission Staff Response**:*
The Commission staff wishes to apologize for the misinformation presented in the material corresponding to these proposed regulations. The Subject Matter Advisory Panel in Mathematics proposed the options for the Foundational-Level Mathematics, while the Science (Specialized) options were presented to the Subject Matter Advisory Panel in

Science for their review. Additionally, both panels were initially established to review and, if needed, revise the subject matter content so it is aligned with the new K-12 Student Academic Content Standards. Because of their knowledge in the respective area, the panels were asked to assist with the options that would encourage more individuals to become teachers these needed fields. The members of the Subject Matter Advisory Panel in Science concurred that there was a need for more science teachers, and the majority agreed with the Science (Specialized) options.